

AD \_\_\_\_\_

GRANT NO: DAMD17-94-J-4236

TITLE: Biopsychosocial Research Training in Breast Cancer

PRINCIPAL INVESTIGATOR(S): Michael Antoni, Ph.D.

CONTRACTING ORGANIZATION: University of Miami  
Coral Gables, Florida 33124-2070

REPORT DATE: September 1998

TYPE OF REPORT: Annual

PREPARED FOR: Commander  
U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for public release;  
distribution unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE September 1998	3. REPORT TYPE AND DATES COVERED Annual (1 Sep 97 - 31 Aug 98)	
4. TITLE AND SUBTITLE Biopsychosocial Research Training in Breast Cancer			5. FUNDING NUMBERS DAMD17-94-J-4236	
6. AUTHOR(S) Michael H. Antoni				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Miami Miami, Florida 33124-2070			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Commander U.S. Army Medical Research and Materiel Command Fort Detrick, Frederick, MD 21702-5012			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			19990407 111	
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200) Four trainees were enrolled in the training program at the commencement of YR 4, all graduate students in the APA-approved clinical health psychology program. One trainee completed her graduate coursework, defended her dissertation proposal and obtained an APA-approved internship. Three others successfully defended their Master's theses. Training throughout YR 4 was closely coordinated with ongoing ACS-funded and NCI-funded biopsychosocial breast cancer research projects. Trainees also participated in preparing new grant proposals focusing on the biopsychosocial aspects of breast cancer and implemented projects funded with seed money from our cancer center. All trainees were exposed through coursework to experimental design and statistics as well as psychosocial, biobehavioral and pathophysiologic perspectives on breast carcinoma and other chronic diseases. The latter focus is extended through the program's monthly Breast Cancer Research Seminar, weekly Psycho-Oncology Clinical Workshop, weekly Breast Cancer Team Research meeting, and monthly Psychoneuroimmunology Journal Club meeting. This report summarizes the development and growth of the training program across the following areas: Symposia/Didactic Experiences; Active Biopsychosocial Breast Cancer Research Protocols; Cancer Center Programs, Facilities and Resources; Trainee Progress; and Publications and Presentations of Training Program Faculty and Trainees. All four trainees are making excellent progress in academic, research and clinical training.				
14. SUBJECT TERMS Breast Cancer, Training, Psychosocial, Humans, Clinical Trials, Intervention, Adjustment, Health Psychology, Oncology			15. NUMBER OF PAGES 29	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

## FOREWORD

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the US Army.

Where copyrighted material is quoted, permission has been obtained to use such material.

Where material from documents designated for limited distribution is quoted, permission has been obtained to use the material.

Citations of commercial organizations and trade names in this report do not constitute an official Department of Army endorsement or approval of the products or services of these organizations.

In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and Use of Laboratory Animals of the Institute of Laboratory Resources, National Research Council (NIH Publication No. 86-23, Revised 1985).

For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.



PI - Signature

7/28/98  
Date

## TABLE OF CONTENTS

Introduction	1
Body	3
Progress Report	9
Publications in Refereed Journals	15
Books	17
Chapters	18
Published Abstracts	19
Paper Presentations	19
Manuscripts Under Review	23
Conclusions	25

## (5) INTRODUCTION

### A. Statement of the Problem

A diagnosis of breast cancer and subsequent treatment can bring about significant distress, disruption and sexual dysfunction in the lives of women who experience them. Factors such as socioeconomic status, treatment modality, patient perceptions, coping strategies and social support have all been shown to influence the ways in which women adjust to these events. Behavioral interventions developed on the basis of the results of systematic studies of this adjustment process have the potential to foster positive expectancies about the future, can alter patient's coping responses and health maintenance behaviors, increase their sense of support from others, and facilitate an attitude of re-engagement with life. While studies of ethnic minority women have been conducted on breast cancer incidence and survival rates and on tendencies to use or avoid mammography (i.e., primary prevention) virtually no data exist on the predictors of psychosocial sequelae of breast cancer in these groups (i.e., secondary prevention). This represents a serious limitation in our ability to develop effective behavioral interventions to facilitate the adjustment process in these populations. A major focus of our research group has been to evaluate the efficacy and underlying mechanisms of behavioral intervention designed to facilitate psychosocial adjustment to breast cancer and its treatment, and to modify factors possibly associated with physical health and disease recurrence in breast cancer patients.

In order to address these research agenda it is necessary to bring together a multidisciplinary team of talented investigators with expertise in social psychology, behavioral medicine, clinical health psychology, biostatistics/epidemiology, psychiatry and oncology. Traditionally, however, lack of communication among scientists in different disciplines and limited competence in the methodologies of different disciplines have been major obstacles to successful integrative research. The present Training Program is designed to improve such communication and methodological competence through academic, practical, and research experiences focused on training in biopsychosocial aspects of breast cancer.

### B. Background of Previous Work

Over the past 10 years, two large training programs (NHLBI training program: HL07426-15; NIMH training program: MH18917-01) have facilitated the training of several pre-doctoral graduate students and post-doctoral fellows in our division of Health Psychology. Each of these training programs has brought together multidisciplinary faculty to train our students and fellows through the development of coursework, weekly research meetings, exposure to major scientists in the field who served as consultants, laboratory rotations, and closely supervised research and clinical experiences. Our present roster of research activities includes, but is not limited to two 5-year funded program projects (P01), several individual investigator awards focused upon breast cancer (ACS-funded, NCI-funded) and cervical cancer (NCI-funded), and a series of pilot studies used to develop and test experimental interventions with breast cancer patients.

A unique feature of the proposed training program is the fact that it exists within the context of ongoing research studies (R01), program projects (P01) and co-existing training grants all centered around the examination of the effects of behavior and ethnicity on adjustment to and progression of chronic diseases. Specifically, the NHLBI training grant and program project are focused upon examining the influence of behavior, ethnicity and gender on stress responsivity, hypertension and diabetes. A new focus of this work which commenced in YR 2 and continued throughout YR4 of this DoD training grant, examines the effects of cognitive-behavioral stress management (CBSM) intervention on mental and physical health status patients who are recovering from a myocardial infarction. The NIMH training grant and program project are both dedicated to exploring the effects of behavior and ethnicity on adjustment to and management of HIV-1 infection. During YR 3 another NIMH-funded R01 project commenced (P.I.: S.Weiss, co-P.I.: N.

Schneiderman) to investigate the effects of a CBSM intervention (developed by Dr. Antoni) on adjustment in women with AIDS.

Two ongoing psycho-oncology programs led by Dr. Antoni focus on the influence of behavior on health outcomes in minority women recently diagnosed with early-stage breast cancer or pre-clinical cervical neoplastic changes. One of these, an NCI-funded project (NCI 5 P30CA14395) examines the role of stressors, coping and social support upon cervical neoplasia and related immune measures in African American women who carry multiple viral risk factors for cervical carcinoma. A recently completed second study funded by the American Cancer Society (ACS #PBR-82) explored the role of coping and social support as predictors of adjustment to mastectomy among African American and Hispanic American breast cancer patients. With the completion of this study there is now a large amount of data available for analysis by pre-doctoral trainees in the Breast Cancer Training Program and each trainee utilized this and other cancer-related databases to generate abstracts and manuscripts for presentation and publication during YR4.

Several additional programs led or co-led by Dr. Antoni or Dr. Weiss and training program faculty were funded and commenced during the ongoing DoD training program period. These included: (1) an NCI-funded R01 project (1R01CA64710-01) entitled "Coping with Breast Cancer in Younger Women" (P.I. : C. Carver, co-P.I.: M. Antoni); (2) an NCI-supplemental project (1R01CA64710-01) entitled "Lifestyle and Breast Cancer in Cultural and Sexual Minorities" (P.I.: C. Carver); (3) an NCI-funded project entitled "PDQ/PIF Evaluation in Multiethnic Populations" (P.I.: S. Weiss); (4) a developmental grant funded by the Sylvester Cancer Center entitled "Stress Management Intervention for Women with Breast Cancer" (P.I. : G. Ironson); and (5) a newly funded NCI project (R01CA97-018) entitled "Quality of Life in Adult Cancer Survivors" (P. I.: C. Carver). It is noteworthy that each of these projects involves examines the role of stress and coping variables or the efficacy of psychosocial interventions with breast cancer patients, thus providing a large number of training opportunities in secondary prevention of breast cancer for the trainees. Each trainee is involved in research activities on at least one of these breast cancer projects.

During YR3 the Sylvester Comprehensive Cancer Center (SCCC) made funds available to serve as seed money for innovative oncology research ideas generated by our University's faculty and post-doctoral fellows. A number of pre-doctoral trainees (S. Alferi, B. McGregor) were involved in "co-writing" these small grants, which were funded by the SCCC to do completely novel projects or to supplement pre-existing parent studies in order to address new questions. To date this has resulted in one trainee receiving funding to do an extensive immunologic assessment of breast cancer patients participating in one of the NCI intervention trials (B. McGregor). Another trainee received funding for a project evaluating the effects of a CBSM intervention on objective (hormonal) indices of distress and arousal in breast cancer patients participating in this NCI trial. During YR 4 these two supplemental projects provided both an important training facet for these students as well as contributing in a significant way to our research program.

In sum, during YR 4 we continued to provide rich training in psycho-oncology and breast cancer. First, we had available for study a large multiethnic population of breast cancer patients. Second, our medical complex, including the SCCC, is the major treatment center for breast cancer patients in South Florida and is actively involved in ongoing clinical trials and basic biomedical research protocols. Moreover, the Courtelis Center for Research and Treatment in Psychosocial Oncology at the SCCC, led by Dr. Weiss, the co-P.I. of this training grant, has developed into a major treatment and research center within the university and continues to play a central role in providing clinical and research training opportunities for our trainees. Third, at the heart of the pre-doctoral training program, we have a comprehensive curriculum and well-developed pre-

doctoral graduate program in clinical health psychology. Fourth, we have a substantial number of extramurally funded research projects that are investigating relationships among psychosocial variables, health, adjustment and behavioral management of chronic diseases such as breast cancer, cervical cancer, HIV infection, and cardiovascular disease. Fifth, we have a collegial, interactive faculty with demonstrated expertise in social psychology, behavioral medicine/clinical health psychology, epidemiology and biostatistics, psychiatry and oncology as these disciplines relate to the study of breast cancer. Sixth, we have a large pool of trainee applicants to our graduate program and post-graduate positions who are both qualified and interested in entering our training program and developing research careers. Seventh, our faculty is experienced in the intricacies of conducting collaborative research and training and has already worked together in administering two other health-related training grants.

### C. Purpose of the Present Work

This program was designed to provide multidisciplinary research training in biopsychosocial aspects of breast cancer in the context of predoctoral training in Clinical Health Psychology leading to the terminal degree of Ph.D..

### D. Methods of Approach

This program provides multidisciplinary research training in biopsychosocial aspects of breast cancer. Training is closely coordinated with ongoing research projects in breast cancer being conducted by Training Program faculty. The Training Program makes use of the faculty, resources, and experiences that are readily available at SCCC and those that we have secured from our ongoing NIMH and NHLBI training grants and parallel NIMH and NHLBI program projects (P01) that are focused on other chronic disease processes. Trainees are graduate students in Psychology (Health Psychology/Behavioral Medicine) and have offices in the Behavioral Medicine Research Center on the campus of the University of Miami School of Medicine Complex or at the Behavioral Medicine Research Building on the Coral Gables campus. The program was designed to offer the trainees the complete APA-approved academic program in Clinical Health Psychology in addition to participating in academic (didactic), research, and clinical activities specific to the biopsychosocial aspects of breast cancer. To accomplish these training goals, in addition to coursework, each trainee participates in our regularly scheduled psycho-oncology and breast cancer seminar/workshops held at the SCCC; and undergoes rotations in the psychosocial assessment, behavioral interventions, and statistics core laboratories at our Behavioral Medicine Research Center (BMRC) and at the SCCC. In addition each trainee is given the opportunity to complete other rotations in the immunology and biochemistry assay core laboratories at the University of Miami School of Medicine. They gain direct research experience working on federally-funded research projects with several training faculty members who are actively working in research on breast cancer. One faculty member from the Health Psychology faculty is designated as primary preceptor and one faculty member from the Departments of Medicine, Oncology, Psychiatry or Epidemiology will serve as the secondary preceptor for each trainee. All trainees are exposed through coursework to experimental design and statistics as well as psychosocial, biobehavioral and pathophysiologic perspectives on breast carcinoma that are provided by way of didactic research seminars and clinical workshops.

## **(6) BODY**

### **A. Execution of Training Program Design**

Training throughout YR 4 continued to be closely coordinated with ongoing biopsychosocial breast cancer research projects including NCI-funded projects examining factors predictive women's adjustment to surgical mastectomy for primary disease. During YR 4 the NCI-funded

project was exclusively focused on the implementation of a CBSM intervention with women recovering from mastectomy. Because the protocol for this project required that we recruit and screen a new cohort of patients every 5 weeks and then follow them over four timepoints with an assessment battery, there was ample opportunity from this project alone for all trainees to have multiple opportunities for patient contact for the purposes of assessment and intervention experiences. After completing a detailed 10-week training program in the use of the CBSM intervention, each trainee co-led (with a clinical psychologist) at least one 10-week CBSM group during YR 4. Throughout YR 4 trainees also participated in collecting data on two other breast cancer protocols. S. Alferi was involved in one of these studies examining the effects of CBSM on psychological adjustment, quality of life and immune system functioning in breast cancer patients who had already completed their adjuvant therapies (P.I.: G. Ironson), while B. McGregor worked on another protocol examining the psychosocial factors predictive of psychological adjustment to breast cancer diagnosis and treatment sexual minority women (P.I.: C. Carver). The training program was also able to make use of the faculty, resources, and experiences that we have secured from our ongoing NIMH and NHLBI training grants and parallel NIMH and NHLBI program projects (P01) that are focused on other chronic disease processes. All four of the trainees enrolled are graduate students in Psychology (Health Psychology/Behavioral Medicine) and have offices in the Behavioral Medicine Research Center and affiliated buildings on the campuses of the University of Miami including the School of Medicine Complex and SCCC.

In the current program each trainee continues to participate in regular (weekly and monthly) psycho-oncology and breast cancer didactic seminars, workshops, grand rounds and tumor boards; undergoes rotations in the psychosocial assessment, behavioral interventions, and statistics core laboratories; and has the opportunity to complete other rotations in the clinical immunology and biochemistry assay core laboratories within the University's School of Medicine. During YR 4 each trainee gained experience working on research projects with several training faculty members who were actively working in research on breast cancer. Three trainees (S. Alferi, B. McGregor, A.(Eisenberg) Boyer) defended their Master's thesis—each focused on biopsychosocial aspects of breast cancer—and one (J. Lehman) defended her dissertation proposal, all projects focused on biopsychosocial aspects of breast cancer. All trainees were exposed through coursework to experimental design and statistics as well as psychosocial, biobehavioral and pathophysiologic perspectives on breast carcinoma and other chronic diseases. The latter focus was extended by their attendance at the weekly Psycho-Oncology Clinical Workshop, weekly Breast Cancer Team Research Meeting, monthly Psycho-Oncology Research Seminar and the monthly Psychoneuroimmunology Journal Club meeting.

Trainee selection . As of September 1997, the beginning of YR 4 of the training program, four (4) trainees were participating in the program. All of these were students had been in the training program from the previous year. Their preceptors were as follows: J. Lehman-C.S. Carver; S. Alferi-/M.Antoni/G. Ironson/ S.Weiss, B. McGregor-M. Antoni/B.Blomberg, and A. (Eisenberg) Boyers- M. Antoni/ C. Carver. The progress of each trainee is detailed in a latter section of this report.

Training structure. As in prior years, a considerable amount of coursework and didactic training was available for trainees, though the major emphasis of the training program is upon direct involvement in research and focused clinical practica. All trainees (as well as other Health Psychology graduate students) spent a substantial portion of their time (approximately 20 hrs per week) conducting research throughout the calendar year. To facilitate this, Health Psychology students were restricted to 10 credits of coursework per semester. In addition to research and coursework the trainees completed clinical practica ranging from 7 - 10 hrs/week during the Fall, Spring and Summer semesters during YR 4. The balance of their time was spent attending various didactic experiences (detailed below) as part of the Training Program.



**Coursework.** Through courses offered in the Health (Clinical) Psychology Program all trainees receive combined training in behavioral medicine research and the development of closely related skills useful for research in health clinical psychology. (see YR 1 Annual Report for details). Briefly, all trainees are required to take a rigorous three semester experimental design and statistics sequence. The first semester of the experimental design and statistics sequence reviews introductory statistics, principles of experimental design, basic computer applications and data management. Subsequently, trainees take courses in Advanced Psychological Statistics and in Multiple Regression Statistics. Trainees must also complete *Core* courses in Psychobiology, Psychopathology, Social Psychology, and Developmental Psychology. In addition to *Core* courses each trainee will complete three courses in Assessment (general psychological assessment and two advanced specialty courses such as Psychological Assessment of Physical Disorders and Neuropsychological Assessment, Advanced Projective Assessment), two additional courses in Pathology (from Fundamentals in Behavioral Medicine, Advanced Behavioral Medicine, Psychoneuroimmunology, Psychophysiology, Psychopharmacology, Advanced Experimental Psychopathology and Psychosomatics), and three courses in Intervention (chosen from Introduction to Psychological Intervention, Cognitive Behavioral Intervention, Psychological Intervention in Physical Disorders, Group Therapy, Family Therapy). At the time of pre-registration each trainee reviews their academic progress and chooses their coursework for the subsequent semester during a face-to-face meeting with their primary preceptor. Because many of the specific activities relating to breast cancer were initiated in YR 1 we included detailed descriptions of these in the YR 1 annual report in a section entitled: Program Development and Growth. For a review of these, please refer to the sections of that report.

## **B. Program Development and Growth**

This section provides an update of those YR 4 experiences and facilities central to the focus of this training program: Biopsychosocial Aspects of Breast Cancer. In addition to coursework each pre-doctoral trainee also participates in regular (weekly and monthly) psycho-oncology and breast cancer didactic seminars, workshops, grand rounds and tumor boards; undergoes rotations in the psychosocial assessment, behavioral interventions, and statistics core laboratories; and has the opportunity to complete other rotations in the clinical immunology and biochemistry assay core laboratories within the University's School of Medicine. Each trainee gains experience working on research projects with several training faculty members who are actively working in research on breast cancer. All trainees are exposed through coursework to psychosocial, biobehavioral and pathophysiologic perspectives on breast carcinoma and other chronic diseases. The latter focus is extended by their attendance at the weekly Psycho-Oncology Clinical Workshop, weekly Breast Cancer Team Research Meeting, monthly Psycho-Oncology Research Seminar and the monthly Psychoneuroimmunology Journal Club meeting. This section provides a summary of these experiences and facilities since they are central to the focus of this training program—the biopsychosocial aspects of breast cancer. This section is divided into (1) Symposia/Didactic Experiences, (2) Training in Responsible Conduct of Research, (3) Cancer Center Facilities and Resources, and (4) Trainee Evaluation Methods.

**1. Symposia/Didactic Experiences.** The following activities constitute the present symposia/didactic experiences that are made available to trainees for the purpose of providing specific exposure to the biopsychosocial aspects of breast cancer. Some of these activities have mandatory attendance for trainees while others are optional:

**a. Ongoing Monthly Psycho-Oncology Research Seminar.** This seminar is coordinated by Drs. Antoni, Weiss, and Schneiderman. The seminar will meet in the conference room of the SCCC for approximately 1 - 1.5 hours and will be attended by surgical oncologists, psychiatrists, clinical psychologists, social case workers, and nurses who staff the SCCC, VAMC

and the University of Miami School of Medicine. Finally, trainees are encouraged to attend these talks as well as SCCC Grand Rounds talks that are pertinent to breast cancer and other aspects of oncologic research.

**b. Weekly Clinical Psycho-Oncology Workshop.** This workshop is directed by Alicia Capitaine-Ceballos, Ph.D., the Director of Clinical Services in the Psychosocial Oncology program housed at the Courtelis Center for Research and Treatment in Psychosocial Oncology at the SCCC. This weekly seminar uses a small group format to discuss clinical issues relevant to the psychological treatment of cancer patients.

**c. Weekly Breast Cancer (NCI) Research Meeting.** Each week all trainees attend a 2-hour research meeting conducted by Drs. Antoni, Weiss, Carver and Ironson in the Behavioral Medicine Research Building on the Coral Gables campus. Each meeting focuses on two components: ongoing implementation of research protocols, and discussions of theoretical topics relevant to biopsychosocial aspects of breast cancer. Each week during YR 4 all trainees attended a two-hour research meeting conducted by Drs. Antoni, Carver, Ironson and Weiss in the Behavioral Medicine Research Building on the Coral Gables campus. Each meeting focused on two components: ongoing implementation of research protocols, and discussions of theoretical topics relevant to biopsychosocial aspects of breast cancer. Thus in the first hour, issues related to the day-to-day conduct of the ongoing ACS and NCI protocols are discussed. Specific topics centered around subject recruitment, assessment, randomized intervention methods, tracking and retention of subjects, data management and analytic strategies, preparation of reports for publication and presentations for scientific conferences. In most cases each trainee received their day-to-day supervision from one of the 4 post-doctoral fellows associated with this project who in turn reports to Drs. Antoni, Carver and Ironson concerning their research progress. In the second hour of this meeting Drs. Carver, Antoni and Weiss led the group in discussions of various theoretical models underlying psychosocial research with breast cancer patients. Included here were topics such as the role of personality factors (e.g., optimism) in emotional adjustment to mastectomy and adjuvant therapy (C. Carver) and theoretical framework underlying the use of cognitive behavioral stress management intervention to aid in this adjustment process. In addition to detailing the theoretical components of their work, faculty led the group in discussion surrounding design, assessment and analytic strategies available to pursue this line of research. These meetings were critical in shaping the direction and scope of trainees' thesis and dissertation plans that crystallized during YR 4.

**d. Other Training-Related Activities**

d. 1. *Weekly Multidisciplinary Tumor Board Meeting.* This provides trainees an opportunity to gain knowledge into the medical aspects of diagnosis and treatment procedures for breast cancer patients at various stages of disease. Dr. Sharlene Weiss leads all aspects pertaining to psychosocial research and clinical activities during this meeting and fosters the involvement of interested trainees.

d. 2. *SCCC Grand Rounds.* The SCCC Grand Rounds, held each Friday at noon, provides trainees with opportunity to see research presented by leaders in the fields of oncology, immunology/microbiology, psychosocial oncology, epidemiology, and medical ethics. Most talks are presented by speakers from other universities as supported by funding from the SCCC.

d.3. *Monthly Psychoneuroimmunology (PNI) Journal Club.* This training activity is led by health psychology faculty (M. Antoni, G. Ironson) and SCCC faculty (B. Blomberg, M. Fletcher, M. Kumar) who meet with trainees and other health psychology graduate students and post-doctoral fellows to discuss recent articles and innovations in areas of design, assessment and intervention that are relevant to ongoing and planned PNI research in immunologic-related diseases and neoplasias. In general the *PNI Journal Club* experience provides a regular source of research updates and stimulates independent thinking and expansion of ongoing hypothesis testing in a supportive collegial atmosphere. In addition each trainee is furnished with an internet account that allows them to access large research information databases and services including the PNI research networks, MEDLINE/MEDSCAPE and PSY ABSTRACTS.

*d. 4. Intensive Supervision for the Stress Management Group Intervention.*

Each week trainees attend a one-hour group supervision meeting that was focused on the intervention implemented in two ongoing breast cancer protocols that are evaluating the effects of cognitive behavioral stress management (CBSM) interventions. All trainees and fellows will attend these supervisory sessions which are grouped into two parts: an initial 10-wk training program and a continuing supervision of ongoing groups.

**e. Clinical Rotations.** In addition to research and coursework all trainees are given the opportunity, after completing the appropriate pre-requisites, to take one or more clinical practicum rotations in Clinical Health Psychology that are currently available through our collaboration with the SCCC, Mt. Sinai Medical Center, the Division of Biobehavioral Medicine in the Department of Psychiatry, and the Veterans Administration Medical Center's Psychology Service. A new clinical practicum coordinated between the Department of Psychology and the Division of Radiation Oncology which commenced during YR 3 continued into YR 4. This practicum provides trainees with clinical assessment and intervention experiences with SCCC oncology patients who are undergoing radiation therapy and involves psychiatric screening, as well as individual, conjoint and family therapy consultation work. Another clinical practicum in psychosocial oncology is offered at Mt. Sinai Medical Center in Miami Beach. This practicum offers experiences in assessment and intervention with cancer patients dealing with a wide variety of issues such as pain and adjustment following surgery. All clinical practicum rotations typically require 8 - 10 hrs/week over a span of two semesters.

*Evaluation of the progress of trainees* on each of these clinical rotations follows a standard format developed by the Department of Psychology wherein each trainee is assigned an on-site supervisor who meets with the trainee for at least two hours in individual and group supervisory sessions. The on-site supervisor reports to a designated clinical faculty member in the Department of Psychology on the trainee's progress twice each semester and provides the clinical committee with an extensive written evaluation of the trainee's progress. The clinical committee jointly determines the sufficiency of the trainee's performance at the end of each semester.

**f. Research Rotations.** An important part of our program is the opportunity it offers trainees to participate in multiple *Research Rotations*. Trainees are encouraged to participate in more than one project and to work in more than one Core facility before becoming fully committed to research in a particular laboratory. In terms of Core Rotations, students are exposed to the Psychosocial/Psychiatric Assessment (Dr. Antoni), Statistics (Dr. Ironson), Biochemistry (Dr. Kumar), Immunology (Dr. Fletcher) and Behavioral Intervention (Drs. Antoni and Ironson) laboratories concerned with ongoing projects involving cancer patients and other chronic disease populations. In addition to the initial Core rotations, trainees are expected to maintain continuing interactive collaboration between their selected research project and the Cores. Recently we further developed an additional research laboratory alliance designed to provide training opportunities with immunologic assays specific to breast cancer. This laboratory, supervised by a new member the training faculty, Dr. Bonnie Blomberg (Associate Professor of Immunology/Microbiology), is located in the Rosenstiel Building just adjacent to the SCCC. Here Dr. Blomberg has worked very closely with one of our trainees to develop specific assays for breast cancer such as lymphoproliferative responses to the mucin, MUC-1, an ELISA for IgG antibodies to MUC-1, and a Lymphokine-activated killer cell assay for a breast cancer-related antigen.

Evaluation of trainee progress in each of these rotations is conveyed to Dr. Antoni and Weiss by each on-site supervisor on a monthly basis. We have also developed other research rotations within the SCCC, one focusing in the area of bone marrow transplant and another in the area of genetic screening and counseling of patients with a familial history of breast cancer. We will soon

implement an extensive project to identify the psychosocial needs of patients within each of these settings.

**2. Training in Responsible Conduct of Research.** All graduate students in the Division of Health Psychology are required to take the University of Miami course in Research Ethics. This course, which meets for two three-hour sessions, covers six topics: (1) Scientific Misconduct, Responsibility and Data Management; (2) Publication and Authorship; (3) Intellectual Property and Conflicts of Interest; (4) Use of Animals in Research; (5) Human Subjects and Informed Consent; (6) Handling Fraud and Misconduct.

Because much of our research training involves clinical investigation, one training grant meeting per year is devoted to experimenter-subject interactions. Topics range from the need for sensitivity to subject's needs, confidentiality, the need not to inadvertently mislead subjects, etc. All predoctoral students in the Health (Clinical) Psychology program also take a course on Introduction to Clinical Methods. This course, which provides an introduction to clinical interviewing and assessment, lays out during multiple sessions, the requirements of appropriate professional conduct.

During the past year the Division of Health Psychology hired a new faculty member, Ron Franco-Duran, Ph.D. Dr. Duran, who is an Hispanic American Assistant Professor, developed a course on Ethics, Ethnicity and Gender, which will become a mandatory course within the division. This full semester course provides a more detailed presentation of ethics material also covered in the mandatory university course and will deal with ethical, practical and design issues involved in research protocols requiring informed consent and the inclusion of women and minorities. In addition to formal coursework, each member of the training grant faculty is urged to discuss informally with trainees, ethical issues as they pertain to supervision. Training grant faculty are also reminded to be vigilant for any potential breaches of ethics, perceptions of intimidation, etc. The Division of Health Psychology periodically sponsors single session workshops pertaining to ethical issues. In April 1993, for example, the Division invited Dr. Wilhemena Black, the University's Director of Human Resources and Affirmative Action to conduct a workshop on sexual harassment. In summary, we believe that it is important to educate both pre- and postdoctoral trainees in the responsible conduct of research.

**3. SCCC programs, facilities and other training resources.** A detailed description of the SCCC programs, facilities and resources was provided in the YR 1 annual report. This center is a major organ for the conduct of the research and clinical activities in this training program. Three major advances in the SCCC that occurred during the period of the present DoD-funded training program included: the creation of the Courtelis Center for Research and Treatment in Psychosocial Oncology, the expansion of the SCCC Breast Cancer Research Program, and the formation of the SCCC Biopsychosocial Oncology Program. All of these developments were instrumental in the continued growth of the research and clinical opportunities available to trainees.

Another major facet of the training program involves trainee participation in local and national scientific conferences where they have the opportunity to present their research findings and hear from experts in the field. *The symposium on Stress and Coping* sponsored by the Department of Psychology and the School of Medicine at the University of Miami is an annual 2-day Symposium focused each year on Stress and Coping processes as related to physical diseases. This symposium is attended by training faculty and trainees and involved empirically-based presentations by national and international behavioral medicine researchers. Although the topics of these talks do not exclusively focus on psycho-oncology many generic issues relevant to adjustment to chronic disease and in the conduct of behavioral medicine research (statistical analytic models, stress-coping theoretical models, and methodological issues involved in the assessment of

coping) are included. During YR4 training faculty and trainees also presented a number of abstracts and papers in the scientific programs of the Society of Behavioral Medicine, the International Psycho-Oncology Society, American Psychosomatic Society and the American Psychological Association. All students attending these meetings to present the results of their research are subsidized for their travel costs by the Department of Psychology and the Graduate Student Association at our university.

**4. Trainee evaluation.** Each predoctoral student in the Department of Psychology is evaluated at the end of every semester in terms of course grades, reports from research and practicum supervisors, and general academic progress (e.g., Masters thesis, Qualifying examinations). These evaluations are first made by the Health Psychology Faculty and then by the entire Department of Psychology Faculty. The written outcome of these evaluations as well as a written report from each trainee's principal research supervisor is forwarded to the training grant Executive Committee (Antoni, Weiss, and Carver) for further evaluation. Since the Master's thesis committee invariably consists entirely of faculty from the training grant program, this provides the training grant faculty with an opportunity to assess each predoctoral trainee's research potential in considerable detail. Trainees are evaluated twice yearly by the Executive Committee so that decisions can be made regarding altering the individual program (e.g., more emphasis upon writing or statistics) and mentors.

## **C. PROGRESS REPORT**

### **C1. Funded Research in Breast Cancer**

One essential feature of the training program experience is the ability to offer trainees the opportunity to work on research projects focused on the biopsychosocial aspects of breast cancer. As stated previously, based upon ongoing grants, trainees have the opportunity to work on one of several different projects. At present this portfolio includes:

(a) An ACS-funded study (ACS #PBR-82; "Coping With Breast Cancer Among Low SES Blacks and Hispanics") exploring the role of coping and social support as predictors of adjustment to mastectomy among African American and Hispanic American breast cancer patients (P.I.: M. Antoni). This study recruited patients through the Breast Health Center within the SCCC. Although this project was completed recently it now provides a large database for trainees and fellows to examine relations between psychosocial predictor variables and adjustment to breast cancer over the months following surgery. During YR 4 one trainee, S. Alferi, successfully defended her Master's Thesis on a project drawn from this database (see individual trainee progress report for details).

(b) The Cross-sectional portion of an NCI-funded R01 project (1R01CA64710-01) entitled "Coping with Breast Cancer in Younger Women" (P.I. : C. Carver, co-P.I.: M. Antoni). This project identifies the major concerns of breast cancer patients in the months following mastectomy and examines the psychosocial predictors of affective, interpersonal and psychosexual adjustment over this period. The chief variables under investigation include vulnerability/resilience, mediating variables of coping, perceptions of partner reactions to surgery, and quality of life. Trainees contribute significantly to the recruiting, scheduling and interviewing of over 240 women for this project. During YR 4 one trainee (A. Eisenberg) successfully defended her Master's thesis and J. Lehman defended her dissertation proposal on projects drawn from this database.

(c) Clinical trial portion of NCI-funded R01 project (1R01CA64710-01) entitled "Coping with Breast Cancer in Younger Women" (P.I. : C. Carver, co-P.I.: M. Antoni). This project was initiated during our ongoing DAMD-funded training grant and evaluates the efficacy of a group-based cognitive behavioral stress management (CBSM) intervention on an independent cohort of post-mastectomy patients. This intervention program was tailored to the special needs of younger early-stage breast cancer patients based upon the results of the prior ACS study as well as

Part 1 of this NCI-funded project. Trainees participated extensively in the tailoring of the *Therapist Manual* as well as the *Participant Workbook* used to implement this program by way of weekly meetings with Dr. Antoni during the development of this protocol. The major outcomes in this study are affective, interpersonal and psychosexual functioning. Trainees are intimately involved in data management and analyses and will similarly be involved in the preparation of research reports under the supervision of Drs. Carver and Antoni. As of this date, this study has recruited over 130 women into the trial which will continue its follow-up assessments through June of 1999. We anticipate that three trainees (S. Alferi, B. McGregor, A. Eisenberg) will draw from this database to conduct their dissertations.

Two trainees, B. McGregor and S. Alferi plan to use different aspects of this study as the basis for their dissertations. B. McGregor will be investigating the effects of CBSM on immunologic status of breast cancer patients using a panel of general and more specific cell-mediated and humoral immune indices that she chose in collaboration with Drs. Blomberg and Antoni. Ms. McGregor has worked extensively over YR 4 to complete the laboratory protocols for conducting these assays. S. Alferi is investigating the effects of CBSM on distress levels using self-report (questionnaire and interview) and physiological (weekly pre-post CBSM session salivary cortisol) indicators to explore mechanisms underlying the distress reducing effects of CBSM in breast cancer patients for her dissertation research. During YR 4 she formulated a weekly sample collection protocol and learned the technique for assaying salivary cortisol levels in cooperation with Dr. Kumar, the Director of our Biochemistry Core;

(d) An NCI-supplemental project (1R01CA64710-01) entitled "Lifestyle and Breast Cancer in Cultural and Sexual Minorities" (P.I.: C. Carver, co-P.I.: G. Ironson). This study is a supplement to the parent project just described, and examines the special needs of lesbian breast cancer survivors, their concerns and their psychosocial adjustment. Based upon the results of this phase of the study a pilot study will develop and test the effectiveness of a CBSM intervention designed to meet the special needs and concerns of this specific sub-population of breast cancer patients. During YR 4, Ms. Bonnie McGregor successfully defended a Master's Thesis (co-chaired by Drs. Carver and Antoni) examining the influence of sexual disclosure and social support on emotional adjustment following surgery in sexual minority breast cancer patients.

(e) An SCCC Developmental grant entitled "Stress Management Intervention for Women with Breast Cancer" (P.I. : G. Ironson). This project tests the effects of a 10-week cognitive behavioral stress management intervention on the quality of life, distress, coping and immunologic status of women with early-stage breast cancer (who have completed adjuvant treatments) in a randomized experimental design. Women complete a comprehensive biopsychosocial assessment battery (including psychosocial interviews and questionnaires and blood draws for immunologic assays) at pre-intervention, post-intervention and at follow-up. During YR 3, one cohort of women completed this protocol. Two trainees played an active role on this project in YR 4: S. Alferi completed psychosocial assessments, and B. McGregor participated in the blood draws and immune assays for this study.

(f) A 2-year project funded by the SCCC Psychosocial Oncology Program entitled "Immunologic changes during Cognitive Behavioral Stress Management in Women with Early Stage Breast Cancer" to incorporate immune measures into an ongoing CBSM intervention with breast cancer patients (P.I., B. Blomberg; **Trainee: B. McGregor**). This project was funded by the SCCC in YR 3 and provides supplies and technical support to examine the effects of CBSM on lymphocyte phenotypes including T-cell subpopulations, B-lymphocytes, and natural killer (NK) cells as well as immune function measures such as lymphoproliferative responses to CD3 cross-linking, Th1 and Th2 cytokine production, interleukin (IL)-2 enhanced NK cell cytotoxicity to the breast cancer cell line MCF7, and B-cell proliferative responses to anti-mu and IL-4. During YR 4, B. McGregor completed assays for cellular phenotyping, lymphoproliferative responses to CD3 cross-linking, Th1 and Th2 cytokine levels in the sera and production in response to challenge across 3 time points for several cohorts of women completing the CBSM intervention protocol. The NK cell cytotoxicity assay was pilot tested and will be conducted on frozen samples in the next few weeks.

(g) A 2-year project funded by the SCCC Psychosocial Oncology Program entitled "Salivary Cortisol Levels in Response to Relaxation Training in Early Stage Breast Cancer Patients" to evaluate weekly salivary cortisol responses in patients participating in the 10-week CBSM program and to relate these physiological responses to mood changes within each CBSM session and over the entire intervention period (P.I.: Dr. Antoni, Trainee: S. Alferi). This project was funded by the SCCC in YR 3 and provides supplies and technical support to conduct assays on weekly pre-post CBSM session salivary cortisol responses in 25 breast cancer patients in CBSM and in 25 breast cancer patients in the control group and 25 age-matched healthy women who will provide a single saliva sample matched for time of day with the CBSM pre-session samples. This project seeks to develop and test valid objective indices of distress reduction for tracking the progress of breast cancer patients enrolled in relaxation and distress reduction protocols. During YR 4 this protocol was implemented in all cohorts of women involved in the CBSM protocol. S. Alferi has conducted assays determining salivary cortisol changes within and across CBSM sessions and is beginning to analyze her data in order to prepare abstracts for presentation at scientific meetings.

(h). A newly funded 4-year NCI project (R01CA97-018) entitled "Quality of Life in Adult Cancer Survivors" (P. I.: C. Carver). This project involves several prospective studies designed to examine a number of psychosocial factors that may serve as predictors of optimal psychosocial adjustment, quality of life and survival time in long-term survivors of breast cancer. The project is unique in that all of the psychosocial data (optimism, coping, social support) were collected 8 - 10 years ago in over 500 women who have been followed intensively since that time. In some cases this allows us to test which factors are most prevalent in those who eventually become long-term survivors. For approximately 130 women we will also test the effects of a psychosocial intervention on quality of life and survival time over up to a 5-year follow-up period.

## **C2. Pending Biopsychosocial Breast Cancer Research Protocols**

(a) A 3-year project submitted to the DOD designed to examine the effects of CBSM on distress and immune status in breast cancer patients who have completed their adjuvant therapies (P.I.: G. Ironson). This project initially received a very favorable priority score (< 10th centile) but was not funded. It is currently being reconsidered.

(b) A 5-year project submitted to the NCI designed to test the effects of CBSM on positive adaptation, quality of life, and immune status in women who are adjusting to the initial diagnosis and treatment for early-stage breast cancer (P.I.: M. Antoni). This project is currently under review.

These ongoing, recently funded and pending projects all deal with evaluating the concerns of breast cancer patients and the efficacy (and underlying mechanisms of action) of psychosocial interventions with this population across a wide range of ages and ethnic groups. Our ultimate goal is to have a comprehensive program of research that addresses the major concerns of breast cancer patients from different ethnic groups, socioeconomic groups and age groups at multiple stages of disease through the use of prospective natural history studies whose results lead directly to the development of theoretically-driven and empirically-validated psychosocial interventions. These interventions are specifically tailored to the chief concerns of breast cancer patients, and are designed to influence a set of theoretically-derived mediators of psychosocial adjustment and physical health for each group. Our goal is to couch all of these activities in the context of a joint collaboration between the Department of Psychology, the SCCC and the Departments of Medicine and Psychiatry at the University of Miami. This collaborative arrangement not only facilitates the conduct of this research but also provides a state of the art training environment.

## **C3. Trainee Progress in Breast Cancer Training Program**

All predoctoral trainees in our DoD training program are evaluated each semester for their progress in three general categories: academic and research progress, publication and



presentations, and clinical activities. *Academic and research progress* is evaluated through grades in graduate courses within the clinical health psychology doctoral program, formal end-of-semester evaluations determined by health psychology faculty, progress toward the completion of the Master's thesis and dissertation, evaluation of weekly involvement in breast cancer research protocols and related activities, and participation in the preparation of grant proposals. *Publication and presentations* refer to the trainees' involvement the preparation of manuscripts pertinent to breast cancer and psycho-oncologic topics, and the preparation and presentation of abstracts at scientific meetings. Specific publications and presentations of trainees and training program faculty are listed at the end of this report. *Clinical activities* are also evaluated by way of the written reports of on-site supervisors which are further evaluated by the Clinical Committee in the Department of Psychology. Only those trainees who successfully fulfill the qualitative and quantitative criteria for their clinical practica are allowed to proceed to subsequent clinical placements. We now review the research activities of these pre-doctoral trainees.

Jessica Lehman

GRE: 1340

G.P.A.: 3.87 Goshen College

**Preceptor: C.S. Carver, Ph.D.**

Since joining the training program Ms. Lehman has completed advanced pre-doctoral coursework in family therapy, neuroanatomy, psychological intervention in physical disorders, and social psychology. As part of our graduate program requirement she also taught an undergraduate course in the Psychology of Women. During YR 4 she formulated her dissertation project which examines how coping strategies and optimism predict impairment of daily activities post-diagnosis and treatment during the initial 6 months after surgery in two samples of early stage breast cancer patients. This dissertation, chaired by Dr. Carver, includes over 240 women who have completed the NCI-funded and ACS-funded projects mentioned previously. During YR 4 Ms. Lehman continued to be extensively involved in both the ACS and NCI projects of Drs. Antoni and Carver. She worked 15 -20 hrs /week in various project activities including: recruiting subjects, conducting psychosocial interviews, training new students, maintaining liaison with the surgical oncology offices, managing the project database, and entering data from the interviews. During the training period Ms. Lehman also co-authored an 2 empirical manuscripts and authored or co-authored a numbert of abstracts presented at the Society of Behavioral Medicine and American Psychological Association meetings. Ms. Lehman co-led 7 separate CBSM groups as part of the NCI protocol during the training program. In addition to these activities Ms. Lehman completed one clinical practicum rotation at the SCCC where she gained specific assessment and intervention experience with patients with different types of cancer. This post also involved co-leading orientation seminars for cancer patients (a majority of which are breast cancer patients) preparing for bone marrow transplant and providing psychological support for patients in the transplant unit during their stay. During YR 4 she completed a clinical practicum at Mt. Sinai Hospital's psychosocial oncology service where she is gaining experience in psychosocial intervention with breast cancer and prostate cancer patients. She began a clinical internship on July 1998.

During YR 4 Ms. Lehman also attended weekly meetings of the Breast Cancer research team, the monthly PNI Journal Club meetings, the weekly Clinical Psycho-oncology workshop and several of the breast-cancer focused meetings at the SCCC. Based upon her coursework and dissertation progress, her active participation in breast cancer research protocols and the evaluations of her on-site clinical supervisors, this trainee is making excellent progress in academic coursework, teaching, research training and clinical training.

Bonnie McGregor

GRE Total: 1250

GPA:3.28 Pacific Lutheran

**Preceptors: M.H. Antoni, Ph.D., B. Blomberg, Ph.D.**

Ms. McGregor completed her B.S. degree from Pacific Lutheran University in 1984 and before completing two years in a histocompatibility lab conducting tissue typing and cross



matching for bone marrow, kidney and heart transplants. This post-graduate experience led her to the research she has been conducting for the past 7 years on examining B-lymphocyte defects and cytokine regulation abnormalities in bone marrow transplant patients at the Fred Hutchinson Cancer Center at the University of Washington School of Medicine. During this period Ms. McGregor also managed the clinical immunology laboratory service for the cancer center and was responsible for tracking changes in immune function over the one-year post-transplant period and acquiring, organizing, and analyzing patient data for both research and clinical purposes. Ms. McGregor expressed a particular interest in focusing her graduate training in Health Clinical Psychology in the area of psychosocial intervention and psychoneuroimmunologic aspects of psycho-oncology with a special emphasis on breast cancer.

Since joining the training program Ms. McGregor has enrolled for the full academic load of core courses, has worked 15 -20 hrs/wk on research-related activities and was extensively involved in two NCI-funded studies. One project examines the effects of a CBSM intervention on early-stage breast cancer patients' adjustment following mastectomy. As part of her work on this project, Ms. McGregor developed a sub-project to assess immunologic changes that occur over the intervention period. This subproject was approved by the University's IRB and commenced in early 1996. This sub-project will form the basis for her dissertation and will require one additional year to complete. In order to conduct the immune assays for this study, Ms. McGregor obtained space in the immunology laboratory directed by Dr. Bonnie Blomberg, an Associate Professor of Immunology and Microbiology at the University of Miami School of Medicine. In addition to conducting more general assays for lymphocyte phenotypes and cellular and humoral immune functioning in Dr. Blomberg's lab, Ms. McGregor is working to develop antigen-specific immune assays for her research with breast cancer patients in collaboration with the Clinical Research Laboratory at the SCCC under the supervision of Dr. Parotosh Ghosh. Dr. Blomberg is overseeing all of Ms. McGregor's activities in Microbiology/Immunology while Dr. Antoni is supervising all of her activities in psychosocial assessment and intervention. Initially some of the supplies necessary for setting up the laboratory protocol for conducting these assays was supported by the training grant. During the past year Ms. McGregor was successful in obtaining seed money from the SCCC to cover some additional supplies and technical support to conduct a more extensive battery of assays on these samples. In the context of developing the blood draw and assay activities for this protocol this trainee gained specific experience in biopsychosocial applications of psychotherapeutic interventions and psychoneuroimmunology to breast cancer—her primary interest area. To date a number of cohorts enrolled in the NCI intervention study have provided blood samples as part of the protocol for this substudy.

During the past year Ms. McGregor also took a leadership role in the data collection for an NCI study examining psychosocial factors predictive of emotional adjustment to breast cancer in sexual minority women. This required her to coordinate data collection from several urban centers across the country. She has used this database for her Master's Thesis, a study investigating the role of sexual orientation disclosure and social support in adjustment to mastectomy in this subpopulation which she defended in YR 4. Shortly thereafter Ms. McGegor successfully passes her clinical qualifying examinations. During YR 4 Ms. McGregor presented a paper at the Society of Behavioral Medicine meeting. Ms. McGregor attended all of the mandatory trainee meeting activities, and also attended the monthly PNI Journal Club meetings and several activities at the SCCC. She was also very successful in establishing excellent working relationships with the Research Assistants and Post-Doctoral Fellows working in microbiology/Immunology and other breast cancer psycho-oncology research at the University's medical school and at the SCCC.

Based upon her coursework and thesis progress, her participation in breast cancer research protocols and the procurement of seed money for supplemental projects, presentation of research findings at scientific meetings, and the evaluations of her on-site clinical supervisors, this trainee is making excellent progress in the training program.

Amy Eisenberg GRE Total: 1320

G.P.A: 3.51 U. Penn.

**Preceptors: M. H. Antoni, Ph.D., C.S. Carver, Ph.D.**

Before joining the program Ms. Eisenberg completed her undergraduate training at the University of Pennsylvania where she worked in the laboratory of Dr. Martin Seligman conducting studies on the correlates of attributional style. After completing her degree she worked at the Memorial Sloan-Kettering Cancer Center as a full-time research assistant with Sharon Manne, Ph.D. conducting an NCI-funded longitudinal study examining how couples cope with breast and colon cancer and chemotherapy treatment over a 4-month period. During YR 4 Ms. Eisenberg completed a full academic load of advanced coursework in health psychology applications to assessment and intervention with medical patients and also completed the sequence in advanced multivariate statistical analysis. She worked 15 -20 hrs/wk on breast cancer research-related activities.

Specifically she was extensively involved in an NCI cross-sectional study examining major concerns post-mastectomy and factors associated with adjustment in the months following surgery. On this team she has gained experience in patient contact and recruitment, telephone administration of questionnaire packets, coordinating with the network of surgical oncology offices involved in the study, and database management. Based upon her work on this project Ms. Eisenberg has developed a special interest in studying how breast cancer patients' perception of positive experiences surrounding diagnosis of cancer are predictive of emotional adjustment in the months following surgery, an area that formed the basis of her Master's Thesis. During YR 4 she successfully defended her Matser's thesis and passed her clinical qualifying examinations. She attended weekly meetings of the Breast Cancer research team, monthly PNI Journal Club meetings and the monthly Biopsychosocial research meeting at the SCCC. During YR 4 Ms. Eisenberg served as a group leader for several CBSM groups in the NCI intervention project.

Ms. Eisenberg co-authored (with Sharon Manne, Ph.D. and Deborah Miller, Ph.D) an abstract that was presented at the 1997 annual meeting of the Society of Behavioral Medicine. She also presented an abstract at the 1997 Society of Behavioral Medicine conference and another at the 1998 American Psychosomatic Society meeting both based on the breast cancer work she conducted at Miami.

During YR 4, Ms. Eisenberg completed a clinical practicum at the Division of Radiation Oncology at the SCCC where she gained assessment and intervention experience with patients undergoing radiation therapy for breast cancer and other conditions. Based upon her coursework and thesis progress, her participation in breast cancer research protocols, presentation of research findings at scientific meetings, and the evaluations of her on-site clinical supervisors, this trainee is making excellent progress in the training program.

Susan Alferi GRE Total: 1270

G.P.A: 3.93 U.Miami

**Preceptors: M.H. Antoni, Ph.D., G. Ironson, M.D., Ph.D.**

Ms. Alferi was admitted to the program in August, 1996. Before coming to the program she had obtained a number of years experience working with behavioral medicine researchers at the University of Miami concurrent with her completion of an undergraduate degree in Psychology in which she graduated magna cum laude. She is currently enrolled in a full load of academic coursework, attends the weekly NCI Research group meeting and is working on the NCI project in the role of recruitment, screening and psychosocial interviewing of women with early-stage breast cancer. Her duties on the project currently include organizing the participant files, reviewing all incoming mail, coordinating participant tracking, coordinating cohort windows and target dates, conducting phone screens and data entry. As part of the project, she has also been a co-therapist of the 10-week CBSM intervention on another study of breast cancer patients being conducted by

Drs. Ironson and Weiss. During YR 4 Susan successfully defended her Master's thesis examining ethnic and cultural differences in partner relationships of breast cancer patients. During YR 3 she prepared a grant proposal (with Dr. Antoni) which was funded by the SCCC to examine the effects of relaxation training on salivary cortisol in breast cancer patients throughout the 10 week CBSM intervention. During YR 4 she implemented this protocol in a number of cohorts of women enrolled in our NCI intervention study. This study will serve as the basis of her dissertation.

During YR 4 Ms. Alferi first-authored an empirical manuscript examining relations between religiosity and coping strategies and emotional adjustment after mastectomy in women with early-stage breast cancer. This paper is currently under editorial review. She also presented an abstract based upon her research at the Society of Behavioral Medicine in April, 1998. Based upon her coursework, her participation in breast cancer research protocols and the procurement of seed money for supplemental projects, presentation of research findings at scientific meetings, and the evaluations of her on-site clinical supervisors, this trainee is off to an outstanding in the training program.

Christina Wynings

GRE: 1440

G.P.A.: N/A Yale/Stanford

Ms. Wynings joined the training program in 1994 and successfully defended her dissertation and completed an APA-approved clinical internship at the Northwest Dade Community Center in Ft. Lauderdale, Fl. in 1996. In July 1996 she submitted a proposal to the DOD for a post-doctoral fellowship in psychosocial research in breast cancer that was designed to apply her thesis and dissertation findings concerning the buffering effects of social support in trauma victims to the context of breast cancer patients adjusting to surgery and treatment for breast cancer. Unfortunately this proposal did not receive a priority score in the fundable range. She is in the process of applying for post-doctoral fellowships in the area of psychosocial oncology.

#### **C4. Publications and Presentations of Training Faculty and Trainees During YR 4**

\*trainee

#### **PUBLICATIONS IN REFEREED JOURNALS**

Spencer, S. M., Lehman, J. M\*, Wynings, C\*, Arena, P., Carver, C. S., Antoni, M. H., Derhagopian, R. P., Ironson, G., & Love, N. (in press) Concerns of a multi-ethnic sample of early stage breast cancer patients and relations to psychosocial well being. *Health Psychology*.

Carver, C. S., Harris, S. D., Lehman, J. M\*, Durel, L. A., Antoni, M. H., Spencer, S. M., & Pozo-Kaderman, C. How important is the sense of personal control? Studies of early stage breast cancer patients. *Personality and Social Psychology Bulletin*.

Byrnes, D., Antoni, M.H., Goodkin, K., Efantis-Potter, J., Simon, T., Munajj, J., Ironson, G., & Fletcher, M.A. (in press, 1998) Psychosocial factors, NKCC, and cytotoxic/suppressor T-cells in HIV+ Black women at risk for cervical cancer. *Psychosomatic Medicine*.

Carver, C. S., Pozo-Kaderman, C., Price, A. A., Noriega, V., Harris, S. D., Derhagopian, R. P., Robinson, D. S., & Moffatt, F. L., Jr. (in press, 1998). Concern about aspects of body image and adjustment to early stage breast cancer. *Psychosomatic Medicine*.

Woods, T., Antoni, M.H., Ironson, G., & Kling, D. (in press) Religiosity is associated with affective and immune status in symptomatic HIV-infected gay men. *Journal of*

*Psychosomatic Research.*

- van der Pompe, G., Antoni, M.H. & Heijnen, C. (in press, 1998) The relations of plasma ACTH and cortisol levels with the distribution and function of peripheral blood cells in response to a behavioral challenge in breast cancer: An empirical exploration by means of statistical modelling. *International Journal of Behavioral Medicine*.
- Storek, J., Mendelmen, P., Witherspoon, R., McGregor, B.\* & Storb, R. (in press) IgG response to pneumococcal polysaccharide-protein conjugate is not better than IgG response to polysaccharide in marrow transplant recipients and in normal adults. *Clinical Infectious Disease*.
- Perna, F., Antoni, M.H., Kumar, M., Cruess, D., & Schneiderman, N. (in press, 1998) Cognitive behavioral intervention effects on mood and cortisol during athletic training. *Annals of Behavioral Medicine*.
- Kumar, A., Weiss, S., Fernandez, J., Cruz, D., & Eisdorfer, C. (in press, 1998) Peripheral serotonin levels in women: Role of aging and ethnicity. *Gerontology*.
- van der Pompe, G., Antoni, M.H., & Heijnen, C. (in press, 1998) The effects of surgical stress and psychological stress on the immune function of operative cancer patients. *Psychology and Health*.
- Carver, C. S. (in press). Generalization, adverse events, and development of depressive symptoms. *Journal of Personality*.
- Burnett, K., Ironson, G., Benight, C. C., Wynings, C\*, Greenwood, D., Carver, C. S., Cruess, D., Baum, A., & Schneiderman, N. (1998). Measurement of perceived disruption during rebuilding following Hurricane Andrew. *Journal of Traumatic Stress*.
- Lutgendorf, S., & Antoni, M.H. (in press, 1998) Emotional and cognitive processing in a trauma disclosure paradigm. *Cognitive Therapy and Research*.
- Carver, C. S., & Scheier, M. F. (in press). Themes and issues in the self-regulation of behavior. In R. S. Wyer, Jr. (Ed), *Advances in social cognition* (Vol. 12). Mahwah, NJ: Erlbaum. (target article)
- LaPerriere, A., Ironson, G., Antoni, M.H., & Schneiderman, N. (in press) Psychoneuroimmunologic benefits of exercise. *Sports Medicine*.
- Malow, R., McPherson, S., Klimas, N., Antoni, M.H., Schneiderman, N., Penedo, F., Ziskind, D., & Page, B. (1998) Adherence to complex combination antiretroviral therapies in HIV+ drug abusers. *Psychiatric Services*, 49, 1021 - 1022.
- van der Pompe, G., Antoni, M.H., & Heijnen, C. (1998) The effect of mild acute stress on immune cell distribution and natural killer cell activity in breast cancer patients. *Biological Psychology*, 48, 21 - 35.
- Lutgendorf, S., Antoni, M.H., Ironson, G., Starr, K., Costello, N., Zuckerman, M., Klimas, N., Fletcher, M.A., & Schneiderman, N. (1998) Changes in cognitive coping skills and social support mediate distress outcomes in symptomatic HIV-seropositive gay men during a cognitive behavioral stress management intervention. *Psychosomatic Medicine*, 60, 204-214.

- van Der Pompe, G., Antoni, M.H., & Heijnen, C. (1997) The effect of existential experiential group psychotherapy on basal endocrine and immune parameters in women with breast cancer. *Journal of Psychosomatic Research*, 42, 453-466.
- Benight, C., Antoni, M.H., Kilbourn, K., Ironson, G., Kumar, M., Fletcher, M.A., Schneiderman-Redwine, L., Baum, A., & Schneiderman, N. (1997) Coping self-efficacy buffers psychological and physiological disturbances in HIV-infected men following a natural disaster. *Health Psychology*, 16, 1-8.
- Ironson, G., Wynings, C\*, Schneiderman, N., Baum, A., Rodriguez, M., Greenwood, D., Benight, C., Antoni, M.H., LaPerriere, A., Huang, H., Klimas, N., & Fletcher, M.A. (1997) Post traumatic stress symptoms, intrusive thoughts, loss and immune function after Hurricane Andrew. *Psychosomatic Medicine*, 59, 128 - 141.
- McKinney, C., Antoni, M.H., Kumar, M., Tims, F., & McCabe, P. (1997) Effects of guided imagery and music (GIM) therapy on mood and cortisol in healthy adults. *Health Psychology*, 16 (4), 390-400.
- Carver, C. S. (1997). Adult attachment and personality: Converging evidence and a new measure. *Personality and Social Psychology Bulletin*, 23, 865-883.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4, 92-100.
- Carver, C. S. (1997). The Internal-External scale confounds internal locus of control with expectancies of positive outcomes. *Personality and Social Psychology Bulletin*, 23, 580-585.
- Carver, C. S. (1997). Dynamical social psychology: Chaos and catastrophe for all. *Psychological Inquiry*, 8, 110-119.
- Lutgendorf, S., Antoni, M.H., Ironson, G., Klimas, N., Fletcher, M.A., Schneiderman, N. (1997) Cognitive processing style, mood and immune function following HIV seropositivity notification. *Cognitive Therapy and Research*, 21, 157 - 184.
- Lutgendorf, S., Antoni, M.H., Ironson, G., Klimas, N., Starr, K., McCabe, P., Cleven, K., Fletcher, M.A. & Schneiderman, N., (1997) Cognitive behavioral stress management decreases dysphoric mood and Herpes Simplex Virus-Type 2 antibody titers in symptomatic HIV-seropositive gay men. *Journal of Consulting and Clinical Psychology*, 65, 31 - 43.
- Malow, R.M., Ireland, S.J., Ziskind, D., Alberga, L., Roatta, V.G., Alferi, S.M.\*, & Penedo, F.J. (1997). Acceptability of virucides as an HIV preventive among non-injection cocaine dependent men. *NIDA Research Monographs*.

## BOOKS

- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.
- Chesney, M. & Antoni, M.H. (in press) *Health psychology and HIV disease: From*

*transmission to treatment.* American Psychological Association Press.

Antoni, M.H., Schneiderman, N., & Ironson, G. (in press) *Stress Management for HIV-Infection.* Society of Behavioral Medicine Clinical research Guidebook Series. N.J.: Erlbaum Press.

## CHAPTERS

Antoni, M.H., (in press) Psychoneuroimmunology. In A. Kazdin (Ed), *The Encyclopedia of Psychology.* American Psychological Association and Oxford University Press.

Antoni, M.H. (in press) Cognitive behavioral stress management intervention effects on depressed mood, distress levels and immunity in HIV-infected persons. In S. Johnson, P. McCabe, and N. Schneiderman (Eds), *Stress, Coping and Depression.* Hillsdale N.J.: Erlbaum.

Antoni, M.H. & Schneiderman, N. (in press, 1998) HIV/AIDS. In A. Bellack & M. Hersen (Eds), *Comprehensive Clinical Psychology.* N.Y.: Elsevier Science.

Antoni, M.H. (1998) Integrating the MCMI and the MMPI. In T. Millon & R. Davis (Eds), *The Millon Inventories.* (pp. 106-123) N.Y.: Guilford Press.

Antoni, M.H., Millon, C., & Millon, T. (1998) Psychological assessment in health care delivery: The MBHI and beyond. In T. Millon & R. Davis (Eds), *The Millon Inventories.* (pp. 409-448) N.Y.: Guilford Press.

Ironson, G., Antoni, M.H., Schneiderman, N., LaPerriere, A., Klimas, N., Greenwood, D., & Fletcher, M.A. (in press, 1998) Stress management interventions and psychosocial predictors of progression of HIV-1 infection. In K. Goodkin (Ed.), *Psychoneuroimmunology, Stress, Mental Disorders and Health.* Washington, D.C.: American Psychiatric Press.

LaPerriere, A., Kilbourn, K., Schneiderman, N., Antoni, M.H., Fletcher, M.A., Ironson, G., & Klimas, N. (1998) Exercise medicine in AIDS. In A. Laperriere (Ed), *A handbook of exercise medicine.* N.Y.: Gordon & Beach Science Publishers, Inc.

Spencer, S. M., Carver, C. S., & Price, A. A. (in press). Psychological and social factors in adaptation to cancer. In J. Holland, W. Breitbart, P. Jacobsen, M. Lederberg, M. Loscalzo, M. J. Massie, & R. McCorkle (Eds.), *Textbook of psycho-oncology.* New York: Oxford University Press.

Ironson, G., Antoni, M.H., & Woods, T. (1998). Psychosocial intervention in HIV infection. In A. D. Watkins (Ed), *The physician's handbook of mind-body medicine.* Edinbrugh, U.K.: Churchill Livingstone.

Carver, C. S., Spencer, S. M., & Scheier, M. F. (in press). Motivation, optimism, and mental health. In H. S. Friedman (Ed.), *Encyclopedia of Mental Health.* San Diego: Academic Press.

Carver, C. S. (in press). Optimism. In E. Blechman & K. Brownell (Eds.), *Behavioral medicine and women: A comprehensive handbook* (pp. 145-151). New York:

Guilford.

Malow, R.M., Ireland, S.J., Ziskind, D., Alberga, L., Roatta, V.G., Alferi, S.M.\*, & Penedo, F.J. (1997). Acceptability of virucides as an HIV preventive among non-injection cocaine dependent men. *NIDA Research Monographs*.

Antoni, M.H. (1997) Cognitive behavioral stress management for gay men learning of their HIV-1 antibody test results. In J. Spira (Ed.), *Group therapy for patients with chronic medical diseases*. (pp. 55 - 91) N.Y.: Guilford Press.

Carver, C. S. (1997). Associations to automaticity. In R. S. Wyer, Jr. (Ed.), *Advances in social cognition* (Vol. 10, pp. 95-103). Mahwah, NJ: Erlbaum.

Weiss, S. (1997) Stress Management. In *World Book Health and Medical Annual*. Chicago, IL: World Book, Inc.

## PUBLISHED ABSTRACTS

Penedo, F., Antoni, M.H., Ironson, G., Schneiderman, N., Fletcher, M., Hurwitz, B., & LaPerriere, A. (1998) Psychological distress, alcohol use, and immune function among symptomatic HIV+ gay men. *Psychosomatic Medicine*, 60, 129 (Abstract).

Antoni, M.H. (1998) Secondary prevention in HIV/AIDS. *Psychosomatic Medicine*, 60, 125. (Abstract).

Penedo, F., Malow, R., Jennings, T., McMahon, R., Antoni, M.H., & Schneiderman, N. (1998) Coping, stress, and substance abuse among HIV+ drug dependent women in treatment. *Psychosomatic Medicine*, 60, 129 (Abstract).

Costello, N., Antoni, M.H., Bladewicz, T., Lutgendorf, S., Klimas, N., Schneiderman, N., (1998) Coping and emotional expression effects on distress, illness burden and cytokines in CFS patients after Hurricane Andrew. *Psychosomatic Medicine*, 60, 121 (Abstract).

Boyers, A.\*, Antoni, M.H., & Carver, C.S. (1998) How does optimism predict emotional growth in breast cancer patients? *Psychosomatic Medicine*, 60, 92 - 135.

Byrnes, D., Antoni, M.H., Goodkin, K., Efantis-Potter, J., Simon, T., Munajj, J., Ironson, G., Asthana, D., & Fletcher, M. (1998) Stressful life events are associated with higher levels of squamous intraepithelial neoplasia lesions in HIV+ Black women. *Psychosomatic Medicine*, 60, 94 (Abstract).

Perna, F., Spencer, S., Carver, C., Antoni, M.H., & LaPerriere, A. (1998) Barriers to exercise among stage I and II breast cancer patients at 3-months post-surgery. *Journal of Applied Sport Psychology*.

Antoni, M., Lutgendorf, S., Ironson, G., Fletcher, M.A., & Schneiderman, N. (1997) CBSM intervention effects on mood and immunity in HIV+ gay men: The role of relaxation training, coping skills and social support. *Psychosomatic Medicine*, 59, 81.

## PAPER PRESENTATIONS

Antoni, M.H., & Lutgendorf, S. (August, 1998) *Stress management in HIV infection:*

*Behavioral, immunological and health effects.* Presented at the International Congress of Behavioral Medicine, Copenhagen, Denmark.

Antoni, M.H. (August, 1998) *Stressors, cytokine regulation and CFS symptoms: A PNI model.* Paper presented at the International Congress of Behavioral Medicine, Copenhagen, Denmark.

van der Pompe, G., Antoni, M.H., & Heijnen, C. ( August, 1998) *Effects of group psychotherapy on cardiovascular, endocrine, and immune system reactivity in breast cancer patients.* Paper presented at the International Congress of Behavioral Medicine, Copenhagen, Denmark.

Kilbourn, K., Antoni, M.H., Wagner, S., Carver, C.S., Kumar, M., & Schneiderman, N. (August, 1998). *Coping strategies and neuroendocrine changes in HIV+ gay men exposed to Hurricane Andrew.* Paper presented at the International Congress of Behavioral Medicine, Copenhagen, Denmark.

Dixon, D., Antoni, M.H., Kilbourn, K., Wagner, S., Schneiderman, N., Klimas, N., Fletcher, M. (August, 1998) *Acute and sustained effects of social support on HHV-6 antibody titers in HIV+ gay men following Hurricane Andrew.* Paper presented at the International Congress of Behavioral Medicine, Copenhagen, Denmark

Antoni, M.H. (June, 1998) *Effect of cognitive behavioral stress management intervention in HIV infection: Facts vs. Fiction.* Paper presented at the Academy of Behavioral Medicine, Falmouth, MA.

Weiss, J., Antoni, M.H., Mulder, C., Garssen, B. (June, 1998) *Attitudes, age, education and length of use are related to adherence to combination therapy in HIV-1 positive gay men.* Paper presented at the 12th World AIDS Conference, Geneva, Switzerland.

Cruess, D., Antoni, M.H., Kumar, M., Ironson, G., McCabe, P., & Schneiderman, N. (March, 1998) *Changes in symptoms of distress and sex hormones in symptomatic HIV+ gay men during a cognitive-behavioral stress management (CBSM) intervention.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Penedo, F., Antoni, M.H., Duran, R., Ironson, G., Fletcher, M. & Schneiderman, N. (March, 1998) *Ethnic differences in intervention-associated changes in coping and dysphoria in HIV+ symptomatic gay men.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Byrnes, D., Antoni, M.H., Goodkin, K., Ironson, G., Asthana, D., Efantis-Potter, J., Simon, T., Munajj, J., & Fletcher, M. (March, 1998) *Stressful events, pessimism, and NKCC in HIV+ Black women at risk for cervical cancer.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Goldstein, A., LaPerriere, A., Klimas, N., Antoni, M.H., Ironson, G., Maik-Rachline, G., Talluto, C., Fletcher, M. & Schneiderman, N. (March, 1998) *Weekly adherence to exercise predicts changes in CD4+ counts, fitness and mood in early symptomatic HIV-1 infection.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Kilbourn, K., Antoni, M.H., Wagner, S., Ironson, G., Carver, C.S., Kumar, M., & Schneiderman, N. March, 1998) *Behavioral disengagement mediates elevations in depression and 24-hour urinary epinephrine output in HIV+ gay men exposed to Hurricane*



*Andrew.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Malow, R., Antoni, M.H., Schneiderman, N., Penedo, F., Ironson, G., Ziskind, D., Jennings, T., Greenwood, D., Klimas, N., & Page, B. (March, 1998) *Barriers to adherence with anti-retroviral agents : A pilot study with inner city HIV+ drug abusing men.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Samuels, D., Greenwood, D., Antoni, M.H., Ironson, G., & Szapocznik, J. (March, 1998) *Effects of hassles and coping on change in CD4 count and CD4/CD8 ratio among African American HIV+ women.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Penedo, F., Antoni, M.H., Szapocznik, J., Ironson, G., Zuckerman, M., Fletcher, M. & Schneiderman, N. (March, 1998) *Acculturation and immune function in gay HIV+ Hispanic and non-Hispanic men.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Wagner, S., Antoni, M.H., Cruess, D., Kumar, M., & Schneiderman, N. (March, 1998) *Changes in depression and anxiety during CBSM are differentially related to urinary cortisol and norepinephrine in HIV+ gay men.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Alferi, S.\*, Antoni, M.H., Carver, C.S., Arena, P., Price, A., Weiss, S. (March, 1998) *Hispanic breast cancer patients living alone reveal greater delay in seeking treatment and single women report greater post-surgery anger.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

McGregor, B.\*, Antoni, M.H., Carver, C.S. & Blomberg, B. (March, 1998) *Distress and immune function in early stage breast cancer patients within two months of surgery and immediately prior to a CBSM intervention.* Paper presented at the Society of Behavioral Medicine, New Orleans, La.

Penedo, F., Antoni, M.H., Ironson, G., Schneiderman, N., Fletcher, M., Hurwitz, B., & LaPerriere, A. (March, 1998) *Psychological distress, alcohol use, and immune function among symptomatic HIV+ gay men.* Paper presented at the American Psychosomatic Society, Clerwater Beach, Fl.

Antoni, M.H. (March, 1998) *Secondary prevention in HIV/AIDS.* Paper presented at the American Psychosomatic Society, Clerwater Beach, Fl.

Penedo, F., Malow, R., Jennings, T., McMahon, R., Antoni, M.H., & Schneiderman, N. (March, 1998) *Coping, stress, and substance abuse among HIV+ drug dependent women in treatment.* Paper presented at the American Psychosomatic Society, Clerwater Beach, Fl.

Costello, N., Antoni, M.H., Bladewicz, T., Lutgendorf, S., Klimas, N., Schneiderman, N. (March, 1998) *Coping and emotional expression effects on distress, illness burden and cytokines in CFS patients after Hurricane Andrew.* Paper presented at the American Psychosomatic Society, Clerwater Beach, Fl.

Boyers, A.\*, Antoni, M.H., & Carver, C.S. (March, 1998) *How does optimism predict emotional growth in breast cancer patients?* Paper presented at the American Psychosomatic Society, Clerwater Beach, Fl.

- Byrnes, D., Antoni, M.H., Goodkin, K., Efantis-Potter, J., Simon, T., Munajj, J., Ironson, G., Asthana, D., & Fletcher, M. (March, 1998) *Stressful life events are associated with higher levels of squamous intraepithelial neoplasia lesions in HIV+ Black women*. Paper presented at the American Psychosomatic Society, Clerwater Beach, FL.
- McGregor, B.\*, Antoni, M.H., Carver, C.S., & Weiss, S. (October, 1997) *Effects of CBSM intervention on stress and immunity in women with early-stage breast cancer*. Paper presented at the Department of Defense "Era of Hope" conference. Washington, D.C.
- Antoni, M.H. (October, 1997) *Biopsychosocial research training in breast cancer*. Paper presented at the Department of Defense "Era of Hope" conference. Washington, D.C.
- Perna, F., Spencer, S., Carver, C.S., Antoni, M.H., & LaPerriere, A. (September, 1997) *Barriers to exercise among stage I and II breast cancer patients at 3-months post-surgery*. Paper presented at annual meeting of the Association for the Advancement of Applied Sport Psychology, San Diego, CA.
- Meyer, B., & Carver, C. S. (August 1997) *Predicting affect via exposure to stressful events and self-reported sensitivities to threat and reward*. American Psychological Association, Chicago,.
- Byrnes, D., Antoni, M., Goodkin, K., Ironson, G., Asthana, D., Efantis-Potter, J., Simon, T., Munajj, J., & Fletcher, M.A. (June, 1997). *Stressful life events, repressive coping, pessimism, and natural killer cell cytotoxicity in women with Human Immunodeficiency Virus and Human Papillomavirus*. Paper presented at the National Conference on Women and HIV. Washington, D.C
- Spencer, S. M., Wynings, C\*, Lehman, J\*, Antoni, M. H., Love, N., & Carver, C. S. (April 1997) *Investigaing the concerns of early stage breast cancer patients*. Society of Behavioral Medicine, San Francisco,.
- Eisenberg, A\*, Lehman, J\*, Antoni, M. H., & Carver, C. S. (April 1997) *Do breast cancer patients experiencing increased positive contributions to life after diagnosis report less mood disturbance?* Society of Behavioral Medicine, San Francisco.
- Kilbourn, K. M., Antoni, M. H., Wagner, S., Carver, C. S., Ironson, G., Fletcher, M. A., & Schneiderman, N. (April 1997) *Denial coping predicts increases in signs of disease progression in HIV+ gay men over the two years following Hurricane Andrew*. Society of Behavioral Medicine, San Francisco,.
- Lehman, J. M\*, Antoni, M. H., Lutgendorf, S., Carver, C. S., & Klimas, N. (April 1997) *Coping responses following Hurricane Andrew and symptom exacerbations in chronic fatigue syndrome patients*. Society of Behavioral Medicine, San Francisco,.
- Antoni, M., Lutgendorf, S., Ironson, G., Fletcher, M.A., & Schneiderman, N. (March, 1997) *CBSM intervention effects on mood and immunity in HIV+ gay men: The role of relaxation training, coping skills and social support*. Paper presented at the American Psychosomatic Society. Santa Fe, NM.
- Baldewicz, T., Costello, N., Antoni, M., Lehman, J\*, Klimas, N., Ironson, G., Flechter, M.A., & Schneiderman, N. (April, 1997) *Emotional expression is related to greater psychological distress and IL-6 production in CFS patients*. Paper presented at the Society of Behavioral Medicine meeting, San Francisco, CA.

- McGregor, B\*, Antoni, M., Meyer, B., & Blomberg, B. (April, 1997) *Psychological stress is associated with decreased B lymphocytes*. Paper presented at the Society of Behavioral Medicine meeting, San Francisco, CA.
- Kilbourn, K., Antoni, M., Wagner, S., Carver, C., Ironson, G., Fletcher, M.A., & Schneiderman, N. (April, 1997). *Denial coping and Hurricane-related distress predict increases in serum neopterin in HIV+ gay men over the two years following Hurricane Andrew*. Paper presented at the Society of Behavioral Medicine meeting, San Francisco, CA.
- Penedo, F., Antoni, M., Szapocznik, J., Ironson, G., Zuckerman, M., Fletcher, M.A., & Schneiderman, N. (April, 1997) *Acculturation and immune function in gay HIV+ Hispanic and non-Hispanic men*. Paper presented at the Society of Behavioral Medicine meeting, San Francisco, CA.
- Spencer, S., Wynings, C\*, Lehman, J\*, Antoni, M., Love, N., & Carver, C. (April, 1997) *Investigating the concerns of early stage breast cancer patients*. Paper presented at the Society of Behavioral Medicine meeting, San Francisco, CA.
- Goldstein, A., LaPerriere, A., Klimas, N., Antoni, M., Ironson, G., Talluto, C., Maik, G., Fletcher, M.A., & Schneiderman, N. (April, 1997) *Exercise improves depressed mood in early symptomatic HIV-1 infection*. Paper presented at the Society of Behavioral Medicine meeting, San Francisco, CA.
- Weiss, S. (March, 1997) *Alternative treatments in Breast Cancer*. Presented at the Joint Cancer Conference of the Florida Universities, Orlando.
- Eisenberg\*, A., Antoni\*, M., Carver\*, C., Lehman\*, J. (August, 1997) *Positive contributions made by breast cancer*. Paper presented at the American Psychological Association. Chicago, IL.
- McGregor\*, B., Antoni\*, M., Dettmer, E., Williams, J. (April, 1997) *Examination stress is associated with decrements in B-cells*. paper presented at the Society of Behavioral Medicine, San Francisco, CA.

## MANUSCRIPTS UNDER REVIEW

- Alferi, S.\*, Culver, J., Carver, C.S., Arena, P. & Antoni, M.H. Religiosity, religious coping and distress: A prospective study of catholic and evangelical Hispanic women in treatment for early stage breast cancer.
- van der Pompe, G., Antoni, M.H., Vries-Kragt, K., Pelgrim, F., Visser, A., Vries, M. Prediction of psychological adjustment to breast cancer after participation in group psychotherapy: An empirical exploration. *British J. Clinical Psychology*. (under review).
- van der Pompe, G., Antoni, M.H., Visser, A., & Heijnen, C. Immune and cardiovascular responsivity to a standardized laboratory challenge in breast cancer patients and healthy women. *Cancer Immunology and Immunotherapy*.
- Cruess, D., Antoni, M.H., Schneiderman, N., Ironson, G., McCabe, P., Fernandez, J., Wagner, S., Klimas, N. & Kumar, M. Cognitive behavioral stress management increases

free testosterone and decreases psychological distress in HIV seropositive men.

Cruess, D., Antoni, M.H., Schneiderman, N., Ironson, G., Fletcher, M.A., & Kumar, M. Cognitive behavioral stress management effects on DHEA-S and serum cortisol in HIV seropositive men.

Antoni, M.H., Cruess, D., Wagner, S., Lutgendorf, S., Kumar, M., Ironson, G., Klimas, N., Fletcher, M.A., & Schneiderman, N. Cognitive behavioral stress management reduces anxiety and 24-hour urinary catecholamine output among symptomatic HIV-infected gay men.

Antoni, M.H., Wagner, S., Cruess, D., Kumar, M., Lutgendorf, S., Ironson, G., Dettmer, E., Williams, J., Klimas, N., Fletcher, M.A., & Schneiderman, N. Cognitive behavioral stress management reduces distress and 24-hour urinary free cortisol among symptomatic HIV-infected gay men.

Woods, T., Antoni, M.H., Ironson, G., & Kling, D. Religiosity is associated with affective status in symptomatic HIV-infected African American women.

van der Pompe, G., Antoni, M.H., Visser, A., & Heijnen, C. Immune and cardiovascular responsivity to a standardized laboratory challenge in breast cancer patients and healthy women.

Wagner, S., Antoni, M.H., Kilbourn, K., Ironson, G., Klimas, N., Fletcher, M., Baum, A., & Schneiderman, N. Optimism, distress and immunologic status in HIV-infected gay men following Hurricane Andrew.

## (7) CONCLUSIONS

YR 4 of the training program was successful in accomplishing the general mission of providing multidisciplinary research training in biopsychosocial aspects of breast cancer in the context of predoctoral training in Clinical Health Psychology. Four trainees were enrolled in the training program in YR 4. Training was closely coordinated with ongoing ACS-funded and NCI-funded biopsychosocial breast cancer research projects. All trainees were exposed through coursework to experimental design and statistics as well as psychosocial, biobehavioral and pathophysiologic perspectives on breast carcinoma and other chronic diseases. The latter focus was extended through the program's weekly Psycho-Oncology Clinical Workshop, weekly Breast Cancer Team Research Meeting, monthly Psycho-Oncology Research Seminar and the monthly Psychoneuroimmunology Journal Club meeting. There was a significant amount of development and growth in the training program across the following areas: Symposia/Didactic Experiences; Active Biopsychosocial Breast Cancer Research Protocols; Cancer Center Programs, Facilities and Resources; Trainee Progress; and Publications and Presentations of Training Program Faculty and Trainees. All four trainees appear to be making excellent progress in coursework, research training and clinical training.

Two additional biopsychosocial projects designed by trainees and their preceptors that received funding from the SCCC during YR 3 continued across the YR 4 period. These projects deal with evaluating the effects of a psychosocial intervention on endocrine and immune functioning in an effort to identify the health-promoting mechanisms underlying these interventions. We continue to make progress toward our ultimate goal of building a comprehensive program of training and research that addresses the major concerns of breast cancer patients from different ethnic groups, socioeconomic groups and age groups at multiple stages of disease through the use of prospective natural history studies whose results lead directly to the development of theoretically-driven and empirically-validated psychosocial interventions specifically tailored to the chief concerns of these patients. All of these activities are couched in the context of a joint collaboration between the Department of Psychology, the SCCC and the Departments of Medicine and Psychiatry at the University of Miami. This collaborative arrangement provides a state of the art training environment.